

REMARKS

I. PENDING CLAIMS AND SUPPORT FOR AMENDMENTS

Upon entry of this amendment, claims 1-41 will be pending in this application, with claims 7-9 and 13-41 withdrawn from consideration by the Examiner as being drawn to a non-elected invention.

Applicant has amended claims 1-6 and 10-12 to correct obvious typographical errors as suggested by the Examiner, to clarify that the percentages recited are weight percents based on the total composition, and to use more conventional “comprising” terminology. Support for these amendments can be found in the specification and claims as originally filed. Support for the terminology “organic binder” can be found in the specification at page 3. Support for zirconia particles and activated carbon particles bound into a carbon block with binder can be found, *inter alia*, in the specification at pages 5-7. No new matter has been added.

II. CLAIM OBJECTIONS

In paragraph 3 of the Office action, the Examiner has objected to claims 1, 6, 10, and 12 as containing informalities which have been corrected by the above amendments. Accordingly, the Examiner’s objection should be withdrawn.

III. ANTICIPATION REJECTION

In paragraphs 4-7, the Examiner has rejected claims 4-5 under 35 U.S.C. § 102(b) as anticipated by Gadkaree et al. Applicant respectfully traverses this rejection and requests reconsideration and withdrawal thereof.

Claim 4 recites the presence of zirconia, activated carbon, and an organic binder material. Gadkaree et al. discloses a porous monolithic metal or metal oxide

substrate, coated with activated carbon. The activated carbon is obtained by coating the substrate with a low viscosity carbon-containing liquid, and carbonizing the result. The filtration material obtained contains a porous metal or metal oxide substrate, wherein the surfaces of the pores are coated with activated carbon. It is important to note that in discussions about the relative amounts of various components added to this liquid coating composition (filler, optional activated carbon particles, resin, etc.), the amounts disclosed are based on the weight of the coating liquid, not on the weight of the filter.

In contrast to Gadkaree et al., the claimed filtration media contains particles of zirconia and particles of activated carbon that have been bound together by an organic binder into a porous mass, wherein the particles are adhered to each other by the organic binder. This “carbon block” type structure is fundamentally different from the monolithic, carbon-coated metal or metal oxide structure of Gadkaree et al. Neither the zirconia nor the activated carbon nor any other material is present in monolithic form. Moreover, because in Gadkaree et al. the activated carbon is obtained by carbonizing the carbon-containing liquid precursor, and because there is no need for an organic binder to hold pre-existing particles of activated carbon, the Gadkaree et al. filter material need not contain both activated carbon particles and even if such particles are present, the continuous carbon coating that Gadkaree obtains on his monolith is at least in part the result of decomposition of the coating liquid precursor.

By contrast, Applicant forms his filtration media by combining zirconia particles, activated carbon particles, and binder, mixing these together and molding or

extruding into a desired shape, and allowing the binder to cure, thereby binding the particles together into the desired shape. The shape and porosity of the filtration media of the claims is obtained by adhering small particles together into a bound form, not by the properties of any underlying monolith.

The Gadkaree et al. filter does not contain particulate zirconia and activated carbon held together in a binder; the low viscosity liquid or resin disclosed in Gadkaree et al. serves as a mechanism for getting carbon coated onto the surfaces of the pores of the monolith, not to bind the particles together into a shaped filtration media and provide the underlying rigidity of the structure. As a result, the disclosure of Gadkaree et al. does not anticipate Applicant's claims, and the Examiner's rejection should be withdrawn.

With respect to claim 5, the Examiner has failed to show that an inorganic filler content of 20% of the liquid applied to the monolith pores results in a filter material where the amount of zirconia is about 20 wt% based on the total filter composition, since the total filter composition in Gadkaree et al. includes the weight of the monolith.

IV. OBVIOUSNESS REJECTIONS

A. Claims 1-3 and 6

In paragraphs 9-13 of the Office action, the Examiner has rejected claims 1-3 and 6 as obvious under 35 U.S.C. § 103(a) over Gadkaree et al. Applicant respectfully traverses this rejection and request reconsideration and withdrawal thereof.

In addition to the deficiencies with respect to Gadkaree et al. noted above with respect to claim 4, Gadkaree et al. fail to teach or suggest the claimed range of activated carbon composition. The Examiner concedes this last deficiency, but asserts that the difference between the upper limit on activated carbon in Gadkaree et al. and the lower limit on activated carbon recited in the claims is sufficiently small (10 wt%) to have been obvious to one of ordinary skill in the art.

Applicant takes no position on the correctness of the Examiner's contention, instead noting that the basis for the percentages is quite different, and that the Examiner's contention is therefore irrelevant. The percentage of activated carbon disclosed in Gadkaree et al. is based on the liquid coating applied to the Gadkaree et al. monolith. To even be remotely comparative to the percentages recited in the claims, the Gadkaree et al. percentage should be based on the entire filtration material, including the weight of the monolith. This increase in the denominator will substantially decrease the upper limit on the percentage of activated carbon disclosed in Gadkaree et al., significantly widening the gap in percentages. Similar arguments apply to claims 2, 3, and 6.

At any rate, it is the failure of Gadkaree et al. to even remotely suggest the agglomeration of zirconia particles and activated carbon particles with an organic binder into a rigid solid filtration media that renders Applicant's claims unobvious thereover. As described above, Gadkaree et al. simply coat the pores of an underlying monolithic substrate, rather than form a porous block from zirconia particles, activated carbon particles, and binder. Absent some teaching in Gadkaree et al. to disregard the need disclosed therein to dispose and decompose a coating on an

underlying monolith, and some teaching that would enable one of ordinary skill in the art to do so, Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness.

B. Claims 10-12

In paragraphs 14-17, the Examiner has rejected claims 10-12 under 35 U.S.C. § 103(a) as obvious over Pedersen (U.S. Patent No. 5,118,655) in view of Hawleys' Condensed Chemical Dictionary, pp. 1204-1205. Applicant respectfully traverses this rejection and requests reconsideration and withdrawal thereof.

The Examiner apparently recognizes that Pedersen, which discloses an adsorption composition containing at least 7 components, completely fails to teach or suggest a composition containing zirconia. Nevertheless, without any motivation whatsoever (other than an entry in Hawleys' for zirconia, which says nothing of diatomaceous earth), the Examiner concludes that it would have been obvious to substitute zirconia for diatomaceous earth in the Pedersen composition. What Pedersen states is:

In U.S. Patent No. 4,238,334 there is disclosed a method of various materials for the purification of liquids. The active particulate material that is utilized as the adsorbent material can be an organic polymeric adsorbent, zeolites, bentonite, zirconium oxide, zirconium phosphate, activated alumina, activated carbon or diatomaceous earth.

See column 3, lines 16-22.

This is a far cry from suggesting that diatomaceous earth and zirconia are equivalents, or otherwise suggesting their substitution in the composition of Pedersen. First, that each of the materials recited in the quoted paragraph may be separately

used as adsorbents does not make them equivalents or ready substitutes. The statements in the quote are equally consistent with the notion that each material has its own specific uses, and would be chosen for those uses if there were a reason to do so, but that the materials are not interchangeable in filtration media. Second, each of the materials in the quoted passage are disclosed for individual use. Neither the quote nor the remainder of Pedersen indicates or suggests that any of these materials should be combined. Third, nothing in Pedersen indicates what would happen if zirconia were used in and combined with the other components of the composition of Pedersen. Thus, there is just as much motivation to replace activated carbon in Pedersen with zirconia. The result would not be Applicant's invention. Presumably if Pedersen thought that zirconia was a good substitute for diatomaceous earth, he would have said so explicitly in his description of his invention. He did not. There is no motivation provided by the disclosure of Pedersen to modify the Pedersen et al. composition in any way, much less in the way that results in Applicant's claimed invention.

Applicant respectfully submits that this rejection is based not on motivation provided by the cited reference teachings, but on a hindsight reconstruction of Applicant's invention using the claims as a template. This is not the standard for establishing obviousness under 35 U.S.C. § 103(a). Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness, and that this rejection should be withdrawn.

CONCLUSION

Applicant respectfully submits that the claims of this application are in condition for immediate allowance, and an early notification thereof is earnestly solicited. If the Examiner believes that further issues remain, she is requested to contact the undersigned to arrange for an interview prior to issuance of a final office action.

The Commissioner is hereby authorized to charge any deficiencies or credit any overpayment to Deposit Order Account No. 11-0855.

Respectfully submitted,



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